

REMARKS

STATUS OF CLAIMS

Claims 1-4, 6-11, 13, 15-16, 18-24, 26, 28, 30-31, 33-35, 37, 39-40, and 42-44 are pending. Claims 5, 12, 14, 17, 25, 27, 29, 32, 36, 38, and 41 have been cancelled. Claims 1, 11, 20, and 33 have been amended to further define the lubricant additive. Support for this amendment can be found in the originally filed specification, for example on page 8, line 29 to page 10, lines 12-20. No new matter has been added.

Applicants thank the Examiner for withdrawing the rejections of record except for those discussed below.

Applicant respectfully requests that this Amendment under 37 C.F.R. § 1.116 be entered by the Examiner, placing claims 1-4, 6-11, 13, 15-16, 18-24, 26, 28, 30-31, 33-35, 37, 39-40, and 42-44 in condition for allowance. Applicants submit that the proposed amendments of claims 1, 11, 20, and 33 do not raise new issues or necessitate the undertaking of any additional search of the art by the Examiner, since all of the elements and their relationships claimed were either earlier claimed or inherent in the claims as examined. Therefore, this Amendment should allow for immediate action by the Examiner.

Furthermore, Applicants respectfully point out that the final action by the Examiner presented some new arguments as to the application of the art against Applicant's invention. It is respectfully submitted that the entering of the Amendment would allow the Applicants to reply to the final rejections and place the application in condition for allowance.

Finally, Applicants submit that the entry of the amendment would place the application in better form for appeal, should the Examiner dispute the patentability of the pending claims.

Additionally, Applicants respectfully submit that the finality of the Final Office Action is improper. The Examiner has set forth new grounds of rejection in the Final Office Action that were not necessitated by the applicants' amendment of the claims. "Under present practice, second or any subsequent actions on the merits shall be final, except where the Examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims nor based on information submitted in an information disclosure statement." See MPEP 706.07(a) (emphasis added). In particular, the Examiner has rejected claims in the Final Office Action which were not previously amended by Applicants, as discussed in detail below. Therefore, the finality of the Final Office Action is improper. Applicants respectfully request withdrawal of the finality of the Office Action.

A. REJECTIONS UNDER § 112

The Examiner has rejected claims 1-4, 6-11, 13, 15-16, 18-24, 26, 28, 30-31, 33-35, 37, 39-40, and 42-44 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Specifically, the Examiner has argued that claims 1, 11, 20, and 33, and claims dependent thereon, refer to a reaction mixture "comprising (i) from about 55 to about 65 weight percent raffinate I stream and (i) from about 35 to about 45 weight percent isobutylene," and it is allegedly "not clear whether the 35-45% isobutylene includes the isobutylene present in the raffinate I stream, or is a separate

component." See page 2 of the Office Action. Presently amended claims 1, 11, 20, and 33 now recite a polymerization product derived from a reaction mixture comprising (i) a raffinate I stream and (i) isobutylene, with the proviso that (i) and (ii) are different.

Applicants respectfully submit that the presently claimed invention particularly points out and distinctly claims the subject matter which Applicants regard as their invention, in accordance with 35 U.S.C. § 112. Applicants respectfully request reconsideration and withdrawal of the rejection.

B. REJECTIONS UNDER § 103(a)

1. Crawford in view of Samson

The Examiner has rejected claims 1-4 and 8-10 under 35 U.S.C. § 103(a) as being unpatentable over GB 2048935 to Crawford ("Crawford") in view of U.S. Patent No. 4,605,808 to Samson ("Samson"). See page 2 of the Final Office Action. Applicants respectfully submit that the finality of the Final Office Action is improper. As stated by the Examiner on page 2 of the Final Office Action, new grounds of rejection have been cited. These new grounds of rejection were not necessitated by Applicants' amendment of the claims. In particular, the Examiner has not previously rejected claims 3 and 8-10 under *Crawford* and *Samson*, nor have Applicants amended these claims. Therefore, the finality of the Final Office Action is improper. Applicants respectfully request withdrawal of the finality of the Office Action.

The Examiner has acknowledged that *Crawford* does not disclose a polymerization product of raffinate I stream and isobutylene having an average molecular weight of 800 to 1200 and more than 70 mol% of a terminal vinylidene group. See page 11 of Office Action dated 8-30-2006. However, the Examiner has argued that

Samson discloses a process for making polyisobutylene from 1-olefins and the polyisobutylene has at least a 70 mol% vinylidene content. See *id.*

Samson teaches a process for the cationic polymerization of a feedstock comprising 1-olefins in the presence of a boron trifluoride catalyst. See col. 2, lines 12-14. The feedstock used in the polymerization process “may be pure isobutene or a mixed C₄ hydrocarbon feedstock such as that resulting from the thermal or catalytic cracking operation conventionally known as butadiene raffinate.” See col. 2, lines 33-38. Thus, the reference teaches the polymerization of a single component, pure isobutene or a butadiene raffinate, but does not teach or suggest a polymerization product derived from a reaction mixture comprising two independent components, as presently claimed.

One of ordinary skill in the art considering *Samson* as a whole would not contemplate producing a polymerization product from two independent components, and using the resultant polymerization product as the hydrocarbyl substituent in a dispersant. Instead, a person skilled in the art would only consider polymerizing a single component, as taught by the reference. Therefore, *Samson* does not overcome the deficiency of *Crawford*. Accordingly, the present invention is not obvious in light of *Crawford* in view of *Samson*. Applicants respectfully request reconsideration and withdrawal of the rejection.

2. *Crawford* in view of *Samson* in view of *Papay*

The Examiner has rejected claims 1, 7, 11, 13, 15-16, and 18-19 under 35 U.S.C. § 103(a) as being unpatentable over *Crawford* in view of *Samson* and further in view of U.S. Patent No. 5,652,201 to Papay (“Papay”). See page 3 of the Final Office Action. As stated by the Examiner on page 2 of the Final Office Action, new grounds of

rejection have been cited. These new grounds of rejection were not necessitated by Applicants' amendment of the claims. In particular, the Examiner has not previously rejected claims 1, 7, 11, 13, 15-16, and 18-19 over *Crawford* in view of *Samson* and further in view of *Papay*, nor have Applicants amended these claims, except for claim 11. Therefore, the finality of the Final Office Action is improper. Applicants respectfully request withdrawal of the finality of the Office Action.

Moreover, *Papay* does not overcome the deficiencies of *Crawford* and *Samson* for the same reasons discussed above. As the Examiner has stated, the reference teaches a Mannich polyamine dispersant comprising an alkylphenol, an aldehyde, and a polyamine. See *id.* However, *Papay* does not teach or suggest the present invention, which comprises a hydrocarbyl-substituted dispersant, wherein the hydrocarbyl substituent comprises a polymerization product derived from a reaction mixture comprising (i) from about 55 to about 65 weight percent raffinate I stream and (ii) from about 35 to about 45 weight percent isobutylene, with the proviso that (i) and (ii) are different, as recited in the presently amended claims.

Accordingly, the present invention is not obvious in light of *Crawford* in view of *Samson* and further in view of *Papay*. Applicants respectfully request reconsideration and withdrawal of the rejection.

3. *Crawford* in view of *Papay* in view of *Samson* in view of *Lundberg*

The Examiner has rejected claim 6 under 35 U.S.C. § 103(a) as being unpatentable over *Crawford* in view of *Papay* in view of *Samson* and further in view of U.S. Patent No. 4,971,711 to Lundberg ("Lundberg") for the reasons set forth in paragraph 21 of the Office Action dated 8-30-2006. See page 5 of the Final Office

Action. As stated by the Examiner on page 2 of the Final Office Action, new grounds of rejection have been cited. For at least the reasons discussed above, the finality of the Final Office Action is improper. Applicants respectfully request withdrawal of the finality of the Office Action.

Moreover, claim 6 depends from independent claim 1 and is patentable for the same reasons, as discussed above. Accordingly, the present invention is not obvious in light of *Crawford* in view of *Papay* in view of *Samson* and further in view of *Lundberg*. Applicants respectfully request reconsideration and withdrawal of the rejection.

4. *Crawford* in view of *Samson* and *Papay* in view of *Lambert*

The Examiner has rejected claims 20-23, 26, 28, 30-31, 33-35, 37, 39-40, and 42-44 under 35 U.S.C. § 103(a) as being unpatentable over *Crawford* in view of *Papay* in view of *Samson* and further in view of U.S. Patent No. 5,888,947 to Lambert ("Lambert"). See *id.* As stated by the Examiner on page 2 of the Final Office Action, new grounds of rejection have been cited. For at least the reasons discussed above, the finality of the Final Office Action is improper. In particular, the Examiner has not previously rejected claims 20-23, 26, 28, 30-31, 33-35, 37, and 39-40 over *Crawford* in view of *Samson* and *Papay* in view of *Lambert*, nor have Applicants amended these claims, except claim 33. Applicants respectfully request withdrawal of the finality of the Office Action.

Moreover, *Lambert* does not overcome the deficiencies of *Crawford*, *Papay*, and *Samson* for the same reasons discussed above. In particular, the reference does not teach or suggest the present invention, which comprises a hydrocarbyl-substituted dispersant, wherein the hydrocarbyl substituent comprises a polymerization product

derived from a reaction mixture comprising (i) from about 55 to about 65 weight percent raffinate I stream and (ii) from about 35 to about 45 weight percent isobutylene, with the proviso that (i) and (ii) are different, as recited in the presently amended claims.

Accordingly, the present invention is not obvious in light of *Crawford* in view of *Samson* in view of *Papay* and further in view of *Lambert*. Applicants respectfully request reconsideration and withdrawal of the rejection.

5. *Crawford* in view of *Samson*, *Papay*, and *Lambert* in view of *Galka*

The Examiner has rejected claim 23 under 35 U.S.C. § 103(a) as being unpatentable over *Crawford* in view of *Samson*, *Papay*, and *Lambert* as applied to claims 20-23, and further in view of U.S. Patent No. 6,427,647 to Galka ("Galka"). See *id.* at page 6. As stated by the Examiner on page 2 of the Final Office Action, new grounds of rejection have been cited. For at least the reasons discussed above, the finality of the Final Office Action is improper. In particular, the Examiner has not previously rejected claim 23 under *Crawford* in view of *Samson*, *Papay*, and *Lambert* in view of *Galka*, nor have Applicants amended this claim. Applicants respectfully request withdrawal of the finality of the Office Action.

Moreover, claim 23 depends from independent claim 20 and is patentable for the same reasons, as discussed above. Accordingly, the present invention is not obvious in light of *Crawford* in view of *Samson*, *Papay*, and *Lambert* and further in view of *Galka*. Applicants respectfully request reconsideration and withdrawal of the rejection.

6. *Crawford* in view of *Samson*, *Papay*, and *Lambert* in view of *Albertson*

The Examiner has rejected claim 24 under 35 U.S.C. § 103(a) as being unpatentable over *Crawford* in view of *Samson*, *Papay*, and *Lambert* in view of U.S.

Patent No. 3,653,273 to Albertson ("Albertson"). See *id.* at page 7. As stated by the Examiner on page 2 of the Final Office Action, new grounds of rejection have been cited. For at least the reasons discussed above, the finality of the Final Office Action is improper. Applicants respectfully request withdrawal of the finality of the Office Action.

Moreover, claim 24 depends from independent claim 20 and is patentable for the same reasons, as discussed above. Accordingly, the present invention is not obvious in light of *Crawford* in view of *Samson*, *Papay*, and *Lambert* and further in view of *Albertson*. Applicants respectfully request reconsideration and withdrawal of the rejection.

7. *Crawford* in view of *Tokumoto*

The Examiner has rejected claims 1-4 and 8-10 under 35 U.S.C. § 103(a) as being unpatentable over *Crawford* in view of U.S. Patent No., 6,300,444 to Tokumoto ("Tokumoto"). See *id.* As stated by the Examiner on page 2 of the Final Office Action, new grounds of rejection have been cited. For at least the reasons discussed above, the finality of the Final Office Action is improper. In particular, the Examiner has not previously rejected claims 1-3 and 8-10 in light of *Crawford* in view of *Tokumoto*, nor have Applicants amended these claims, except for claim 1. Applicants respectfully request withdrawal of the finality of the Office Action.

The Examiner has acknowledged that *Crawford* does not disclose the claimed polymerization product. See paragraphs 4 and 17 of the Office Action dated 8-30-2006. However, the Examiner has argued that *Tokumoto* discloses a process for making polyisobutylene from a C₄ fraction, that the product disclosed therein has a vinylidene content well above 70 mol%, and the examples disclose products with molecular

weights either within or very close to the range of 800 to 1200. See *id.* Applicants respectfully assert that claims 1-4 and 8-10 are not obvious for at least the following reasons.

Tokumoto teaches a process for producing butene polymer containing 80 mol % or more of molecules having highly reactive terminal vinylidene structure. See col. 1, lines 5-10. The starting material used in preparing the butene polymer is a C₄ fraction comprising butane-1, butane-2, isobutene, butanes, and butadiene. See col. 2, lines 35-40. For instance, the single example in *Tokumoto* utilized butadiene raffinate as feedstock to form the butene polymers. See col. 8, line 6. *Tokumoto* does not teach or suggest a polymerization product derived from a reaction mixture comprising a raffinate stream and isobutylene. Thus, the reference teaches the polymerization of a single component, but not a polymerization product derived from a reaction mixture comprising two independent components, as recited in the presently amended claims.

One of ordinary skill in the art considering *Tokumoto* as a whole would not contemplate producing a polymerization product using two independent components and employing the resultant polymerization product as the hydrocarbyl substituent in a dispersant. Instead, a person skilled in the art would only consider polymerizing a single component, as taught by the reference. Therefore, *Tokumoto* does not overcome the deficiency of *Crawford*. Accordingly, the present invention is not obvious in light of *Crawford* in view of *Tokumoto*. Applicants respectfully request reconsideration and withdrawal of the rejection.

8. Crawford in view of Tokumoto and further in view of Papay

The Examiner has rejected claims 1, 7, 11, 13, 15-16, and 18-19 under 35 U.S.C. § 103(a) as being unpatentable over *Crawford* in view of *Tokumoto* and further in view of *Papay*. See page 8 of the Final Office Action. As stated by the Examiner on page 2 of the Final Office Action, new grounds of rejection have been cited. For at least the reasons discussed above, the finality of the Final Office Action is improper. In particular, the Examiner has not previously rejected claims 1, 7, 11, 13, 15-16, and 18 in light of *Crawford* in view of *Tokumoto* and further in view of *Papay*, nor have Applicants amended these claims, except for claims 1 and 11. Applicants respectfully request withdrawal of the finality of the Office Action.

Moreover, for the same reasons as discussed above, *Papay* does not overcome the deficiencies of *Crawford* and *Tokumoto*. In particular, the reference does not teach or suggest the present invention, which comprises a hydrocarbyl-substituted dispersant, wherein the hydrocarbyl substituent comprises a polymerization product derived from a reaction mixture comprising (i) from about 55 to about 65 weight percent raffinate I stream and (ii) from about 35 to about 45 weight percent isobutylene, with the proviso that (i) and (ii) are different, as recited in the presently amended claims.

Accordingly, the present invention is not obvious in light of *Crawford* in view of *Tokumoto* and further in view of *Papay*. Applicants respectfully request reconsideration and withdrawal of the rejection.

9. Crawford in view of Papay in view of Tokumoto and further in view of Lundberg

The Examiner has rejected claim 6 under 35 U.S.C. § 103(a) as being unpatentable over *Crawford* in view of *Papay* in view of *Tokumoto* and further in view of *Lundberg* for the reasons set forth in paragraph 22 of the Office Action dated 8-30-2006. See page 10 of the Final Office Action. As stated by the Examiner on page 2 of the Final Office Action, new grounds of rejection have been cited. For at least the reasons discussed above, the finality of the Final Office Action is improper. Applicants respectfully request withdrawal of the finality of the Office Action.

Moreover, claim 6 depends from independent claim 1 and is patentable for the same reasons, as discussed above. Accordingly, the present invention is not obvious in light of *Crawford* in view of *Papay* in view of *Tokumoto* and further in view of *Lundberg*. Applicants respectfully request reconsideration and withdrawal of the rejection.

10. Crawford in view of Tokumoto in view of Papay and further in view of Lambert

The Examiner has rejected claims 20-23, 26, 28, 30-31, 33-35, 37, 39-40, and 42-44 under 35 U.S.C. § 103(a) as being unpatentable over *Crawford* in view of *Tokumoto* and *Papay* as applied to claims 1, 7, 11, 13, 15-16, and 18-19, and further in view of *Lambert*. See *id.* As stated by the Examiner on page 2 of the Final Office Action, new grounds of rejection have been cited. For at least the reasons discussed above, the finality of the Final Office Action is improper. In particular, the Examiner has not previously rejected claims 20-23, 26, 28, 30-31, 33-35, 37, 39-40 in light of *Crawford* in view of *Tokumoto* in view of *Papay* and further in view of *Lambert*, nor have

Applicants amended these claims, except for claims 20 and 33. Applicants respectfully request withdrawal of the finality of the Office Action.

Moreover, *Lambert* does not overcome the deficiencies of *Crawford*, *Tokumoto*, and *Papay* for the same reasons discussed above. In particular, the reference does not teach or suggest the present invention, which comprises a hydrocarbyl-substituted dispersant, wherein the hydrocarbyl substituent comprises a polymerization product derived from a reaction mixture comprising (i) from about 55 to about 65 weight percent raffinate I stream and (ii) from about 35 to about 45 weight percent isobutylene, with the proviso that (i) and (ii) are different, as recited in the presently amended claims.

Accordingly, the present invention is not obvious in light of *Crawford* in view of *Tokumoto* in view of *Papay* and further in view of *Lambert*. Applicants respectfully request reconsideration and withdrawal of the rejection.

11. *Crawford* in view of *Tokumoto*, *Papay*, and *Lambert* in view of *Galka*

The Examiner has rejected claim 23 under 35 U.S.C. § 103(a) as being unpatentable over *Crawford* in view of *Tokumoto*, *Papay*, and *Lambert* as applied to claims 20-23, and further in view of *Galka*. See *id.* at page 11. As stated by the Examiner on page 2 of the Final Office Action, new grounds of rejection have been cited. For at least the reasons discussed above, the finality of the Final Office Action is improper. In particular, the Examiner has not previously rejected claim 23 in light of *Crawford* in view of *Tokumoto*, *Papay*, and *Lambert*, and further in view of *Galka*, nor have Applicants amended this claim. Applicants respectfully request withdrawal of the finality of the Office Action.

Moreover, claim 23 depends from independent claim 20 and is patentable for the same reasons, as discussed above. Accordingly, the present invention is not obvious in light of *Crawford* in view of *Samson*, *Papay*, and *Lambert* and further in view of *Galka*. Applicants respectfully request reconsideration and withdrawal of the rejection.

12. *Crawford* in view of *Samson*, *Papay*, and *Lambert* in view of *Albertson*

This rejection is the same as that discussed in paragraph 6. Applicants respectfully request reconsideration and withdrawal of the rejection for the same reasons discussed above.

CONCLUSION

In view of the foregoing remarks, Applicants submit that this claimed invention, as amended, is neither anticipated nor rendered obvious in view of the cited art references cited against this application. Applicants therefore request the entry of this Amendment, the Examiner's reconsideration of the application, and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 50-2961.

Respectfully submitted,

Dated: June 12, 2007

By: _____



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